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BOSTON, MA 02110

EXAMINER

HALIM, SAHERA

ART UNIT	PAPER NUMBER
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2157

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/612,635

Applicant(s)

WIRYAMAN ET AL.

Examiner

Sahera Halim

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30, 10 - 43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30, 10 - 43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action is in response to communication received on March 26, 2004.
2. Please note that there is a an inadvertent typographical error in the previous Office Action which indicated Group I includes 1-30 instead of 1-30 and 41-43 and Group II includes 31- 43 instead of 31-40.
3. Claims 31-40 has been drawn from consideration, therefore, claims 1-30 and 41-43 are pending.

### ***Drawings***

4. This application, filed under former 37 CFR 1.60, lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings. In unusual circumstances, the formal drawings from the abandoned parent application may be transferred by the grant of a petition under 37 CFR 1.182.
5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Page 9, description of Fig. 5 refers to 106 and 108 which are not shown on Fig. 5. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Specification***

6. The disclosure is objected to because of the following informality: The title is not descriptive. Appropriate correction is required.

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief **but technically accurate and descriptive**, preferably from two to seven words may not contain more than 500 characters.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 12 recites the limitation "the computer-implemented method of claim 1 wherein **session bandwidth packet processing** comprises". There is insufficient antecedent basis for this limitation in the claim. Claim 1 does not have this limitation. For examination purposes it is assumed that claim 12 depends on claim 11.

9. Claim 15 recites the limitation "the computer-implemented method of claim 1 wherein **admission** comprises admission control packet processing". There is insufficient antecedent basis for this limitation in the claim. Claim 1 does not have this limitation. For examination purposes it is assumed that claim 15 depends on claim 14.

10. Claim 23 recites the limitation "the computer-implemented method of claim 1 wherein **TOS packet processing** comprises changing TOS values to match underlying application". There is insufficient antecedent basis for this limitation in the claim. Claim 1 does not have this limitation. For examination purposes it is assumed that claim 23 depends on claim 22.

### ***Claim Objections***

11. Claim 27 is objected to because of the following informalities: Claim 27 claims the limitation of TOS. Since claim 27 depends on claim 26, a new set of claims, it is requested that the abbreviation of TOS be spelled out as type of service. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-3, 43, 25 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pat. No. 6,353,616 to Elwalid et al. (hereinafter Elwalid).

13. Reference to claim 1, Elwalid teaches a computer-implemented method of managing bandwidth (abstract):

receiving packets on an input port (Fig. 1, numeral 102 and 103 - 109, col. 3, line 59 – col. 4, line 44; the routers and destinations receive packets from the source);

classifying received packets in a classification engine (Fig. 2, numeral 210 and 102, col. 4, line 45 – col. 5, line 31)

processing the classified packets in a processing system (Fig. 2, numeral 204, col. 4, line 45 – col. 5, line 31);

and queuing packets in a queuing engine (Fig.2, numeral 214, col. 4, line 45 – col. 5, line 31).

14. Regarding claim 2, Elwalid discloses the computer-implemented method of claim 1 wherein the packets comprise network packets (summary and col. 3, lines 10 –20).

15. As to claim 3, Elwalid teaches the computer-implemented method of claim 2 wherein the network packets comprise traffic types (col. 3, line 59 – col. 4, line 44).

16. Reference to claim 26, Elwalid disclose a bandwidth management system comprising (abstract):

an input port, the input port connected to a classification engine (Fig.1 and 2, numeral 210 and 102, col. 4, line 45 – col. 5, line 31) and ;

a processing engine, the processing engine connected to the classification engine (Fig. 1 and 2, numeral 204, col. 4, line 45 – col. 5, line 31); and

a queuing engine connected to the processing engine and to an output port (Fig.2 numeral 214 and col. 4, line 45 – col. 5, line 31).

Reference to claim 43, Elwalid teaches the computer-implemented method of claim 1 further comprising:

queuing the processed packets in a queuing engine (Fig. 1 numeral 214 and col. 4, line 45 – col. 5, line 31); and

scheduling the queued packets on an output port (Fig. 1 numeral 214 and col. 4, line 45 – col. 5, line 31).

17. Reference to claim 25, Elwalid teaches the computer implemented method of claim 1 wherein queuing comprises placing processed packets in queues according to classes (Fig. 1 numeral 214 and col. 4, line 45 – col. 5, line 31).

### ***Claim Rejections - 35 USC § 103***

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 4 – 5, 22-23, and 9 -10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elwalid.

20. Regarding claims 4 and 5, Elwalid does not explicitly teach the traffic types comprise wide area network (WAN) traffic destined for a local area network (LAN) and the traffic types comprise local area network (LAN) traffic destined for a wide area network (WAN). However, these limitations are old and well known in the art. It would have been obvious for one having ordinary skill in the art at the time of the invention to receive traffic among any type of network because it would allow management of any type of network.

21. Regarding claim 22, Elwalid does not disclose explicitly in his invention the computer implemented method of claim 1 wherein processing comprises type of service (TOS) packet processing. However, this limitation is will known in the art as evidenced by Elwalids background discloser (col. 1, lines 18 – 35). It would have been obvious for a person having ordinary skill in the art the time of the invention to include TOS for it allows to provide differentiated services.

22. As to claim 23 Elwalid does not teach wherein TOS packet processing comprises changing TOS values to match underlying application. However, it would have been



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obvious for one having ordinary skill in the art to modify Elwalid's disclosure because it would allow user flexibility.

23. Regarding claim 9, Elwalid does not teach wherein processing system comprising rate shaping packet processing. However, rate shaping is well known in the art and it would have been an obvious modification to the system. It would have been obvious for one having ordinary skill in the art at the time of the invention to implement rate shaping because it allows equal optimum usage of the system without packets being dropped.

24. As to claim 10, Elwalid does teach the computer-implemented method of claim 9 wherein rate-shaping processing comprises: determining whether class borrowing is enabled for the class assigned to the packet; determining an advertised window size for a class that has class borrowing disabled by the algorithm:  $C = B / (n) (D)$  where C is the capacity of the class, B is the class bandwidth, n is the number of currently active connections and D is an estimate of round trip time of the connection; and determining an advertised window size for a class that has class borrowing enabled by the algorithm:  $C = B' / (n) (D)$  where B, is the maximum of class bandwidth and burst bandwidth. However, It would have been obvious for one having ordinary skill in the art at the time of the invention to implement the above limitations because it allows equal optimum usage of the system without packets being dropped.

25. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elwalid in view of EP Pat. No. 0774848 to Lyles (hereinafter Lyles).

26. Regarding claim 11, Elwalid does not explicitly teach the processing comprises session bandwidth packet processing. However, Lyles teaches session bandwidth packet processing (page 2, lines 35 – line 49). It would have been obvious for one having ordinary skill in the art at the time of the invention to include session bandwidth processing to Elwalid in order to enhance the system's capabilities.

27. Reference to claim 12, Elwalid fails to disclose wherein session bandwidth packet processing comprises: generating a new class for the packet class if a packet class specifies a guaranteed minimum bandwidth; assigning the new class the guaranteed minimum bandwidth; and generating a 5-tuple filter for the new class.

Nonetheless, Lyles discloses wherein session bandwidth packet processing comprises: generating a new class for the packet class if a packet class specifies a guaranteed minimum bandwidth; assigning the new class the guaranteed minimum bandwidth; and generating a 5-tuple filter for the new class (Pg. 5, line 49 –page 6, line 3 and Pg. 9, line 44 –page 11, line 4). Having the teachings of Elwalid and Lyles it would have been obvious for one having ordinary skill in the art the time of the invention to include the above limitations to generate a more effective system.

28. As to claim 13, Elwalid does not disclose wherein the 5-tuple filter comprises a destination address of the packet, a destination port of the packet, a source address of the packet, a source port and a protocol of the packet. Nonetheless, these limitations are well known as evidenced by Lyles (Pg. 5, line 49 –page6, line 3 and Pg. 9, line 44 – page 11, line 4). Therefore, it would have been obvious for a person having ordinary skill in the art at the time of the invention to include the above limitations in order to have easy access to the packets.

Regarding claims 24 and 27, Elwalid does not teach:

session bandwidth packet processing and bandwidth packet processing engine;  
rate shaping packet processing and engine and a rate-shaping engine;  
admission control packet processing and an admission control engine; and  
type of service (TOS) packet processing and a TOS processing engine.

However, it would have been obvious for one having ordinary skill in the art at the time of the invention to include the above limitations in order to manage a system effectively and efficiently.

29. Claims 14 – 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elwalid in view of WO 99 13634 to Carter et al. (hereinafter Carter).

30. Regarding claim 14, Elwalid does not teach wherein processing comprises admission control packet processing. However, Carter discloses admission control

packet processing (page 3, line 31 – page 6, line 4). Having the teachings of Elwalid and Carter, it would have been obvious for one having ordinary skill in the art at the time of the invention to include the admission control packet processing in order to optimize the system.

31. Reference to claim 15, Elwalid does not teach wherein admission control packet processing comprises session: receiving a connection; determining a class for the connection; determining whether there is sufficient bandwidth for the class to guarantee a minimum bandwidth; determining an admission directive from the class; and processing the packets in the connection in response to the admission directive.

However, Carter discloses wherein admission control packet processing comprises session: receiving a connection; determining a class for the connection; determining whether there is sufficient bandwidth for the class to guarantee a minimum bandwidth; determining an admission directive from the class; and processing the packets in the connection in response to the admission directive (pg. 3, line 31 – pg. 6, line 4 and pg. 28, line 7 – page 29, line 2). Having the teachings of Elwalid and Carter, it would have been obvious for one having ordinary skill in the art at the time of the invention to include the admission control packet processing in order to optimize the system.

32. Regarding claims 16, 18 and 20, Elwalid and Carter fail to teach wherein the admission directive is squeeze, drop, and deny. However, it would have been obvious

for a person having ordinary skill in the art at the time of the invention to implement the above limitations in order control arriving connections.

33. Reference to claim 17, 19 and 21, Elwalid and Carter does not teach processing comprises reclassifying the packet to a default class, wherein processing comprises dropping the connection and wherein processing comprises generating a reset packet. However, it would have been obvious for a person having ordinary skill in the art at the time of the invention to implement the above limitations in order control arriving connections.

34. Claims 41 –42, 28 –30, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elwalid in view of U.S Pat. No. 6,646,980 to Packer (hereinafter Packer).

35. Regarding claim 41, Elwalid does not teach the method of claim 1 further comprising receiving parameters from a policy manager. Nonetheless, Packer teaches comprising receiving parameters from a policy manager (col. 11, line 39 – 52 and Fig 4A, numeral 416 and col. 13, line 6 – 14). It would have been obvious for one having ordinary skill in the art at the time of the invention to include a policy manager in order to assign service levels to traffic classes which are be of particular interest.

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36. Reference to claim 28, Elwalid does not teach the bandwidth management system of claim 26 further comprising a policy manager connected to the processing and queuing engine. However, Packer discloses a policy manager connected to the processing and queuing engine (col. 11, line 39 – 52 and Fig 4A, numeral 416 and col. 13, line 6 – 14). It would have been obvious for one having ordinary skill in the art at the time of the invention to include a policy manger in order to assign service levels to traffic classes which are of particular interest.

37. Regarding claim 29, Elwalid does not teach wherein the policy manager is an input device providing parameters. Nonetheless Packer teaches wherein the policy manager is an input device providing parameters (col. 11, line 39 – 52 and Fig 4A, numeral 416 and col. 13, line 6 – 14). It would have been obvious for one having ordinary skill in the art at the time of the invention to include a policy manger in order to assign service levels to traffic classes which are of particular interest.

38. As to claim 42, and 30, Elwalid and Packer do not teach wherein the parameters comprise a class bandwidth and a class priority. However, it would have been obvious for a person having ordinary skill in the art at the time of the invention to include any parameters based on the needs of a specific system.

39. Regarding claim 6, Elwalid does not teach wherein classifying comprises: generating hash values based on components of the network packets; and determining corresponding classes for the hash values. However, Packer discloses generating hash

values based on components of the network packets; and determining corresponding classes for the hash values (col. 15, line 35 – 51 and Fig. 4A). It would have been obvious for a person having ordinary skill in the art at the time of the invention to modify the system by a hashing because it would allow simplified search.

40. Claims 41 –42, 28 –30, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elwalid in view of U.S Pat. No. 6,646,980 to Packer (hereinafter Packer) and further in view of Lyles.

41. Regarding claims 7 and 8, Elwalid and Packer do not teach, wherein the components comprise 5-tuples and wherein the 5-tuples comprise destination addresses, destination ports, source addresses, source ports and protocol numbers. However, Lyles teaches wherein the components comprise 5-tuples and wherein the 5-tuples comprise destination addresses, destination ports, source addresses, source ports and protocol numbers. (Pg. 5, line 49 –page 6, line 3 and Pg. 9, line 44 – page 11, line 4). Having the teachings of Elwalid, Packer and Lyles it would have been obvious for one having ordinary skill in the art the time of the invention to include the above limitations to generate a more effective system.

### ***Conclusion***

42. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S Pat. No. 5,987,502 to Banks et al.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sahera Halim whose telephone number is (703) 305-8054. The examiner can normally be reached on M-F from 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (703) 308-7562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sahera Halim  
Patent Examiner  
AU: 257

June 14, 2004

  
**HOSAIN ALAM**  
**SUPERVISORY PATENT EXAMINER**